

ADDRESS BY THE MINISTER OF HIGHER EDUCATION, SCIENCE AND INNOVATION, DR BLADE NZIMANDE ON THE OCCASION OF THE 2023 NATIONAL RESEARCH FOUNDATION AWARDS HELD AT THE CAPITAL ZIMBALI RESORT IN BALLITO – KWAZULU NATAL

31 August 2023

Programme Director, Dr Gillian Arendse;
Director General of the Department of Science and Innovation, Dr Phil Mjwara;
Deputy Director Generals
Chairperson of the NRF Board, Professor Mosa Moshabela;
CEO of the NRF, Dr Fulufhelo Nelwamondo;
Executive Team of the National Research Foundation;
Members of the diplomatic community;
Leadership of various Science Councils, from South Africa and those from our neighbouring countries and the rest of the African continent;
Vice Chancellors and Deputy Vice Chancellors;
Distinguished guests;
Members of the media;
Ladies and gentlemen
Good evening

BACKGROUND

The 2019 White Paper on STI sets the long-term policy direction for the South African government to ensure a growing role for STI in a more prosperous and inclusive society. The vision of our White Paper on STI will be implemented through our Decadal Plan.

Science, Technology and Innovation (STI's) are critical to have a competitive and sustainable economy and for addressing societal challenges.

This is the reason that I am delighted to be joining you tonight to honour our top researchers to recognise their contributions to the betterment of our society and the advancement of the STI sector in general.

I also find it appropriate that our Awards tonight celebrate the 20th anniversary of the Square Kilometre Array project in South Africa.

As you may have gleaned from the opening video, our country has a long and rich astronomy heritage that predates the first European arrivals on our shores.

For thousands of years our ancestors used the sky, the Sun, the Moon, and the stars to measure the passage of time; the cycle of the seasons; to guide their way across the land and to create the folklore that speaks to our very beginnings as a people.

Our ancestors studied the sky with the most natural of tools – their eyes – but what they saw was a cosmos that was staggering in its enormity, replete with secrets that would only be revealed much later in our history.

Projects such as the Southern African Large Telescope in Sutherland helped place South Africa on the science map as a destination for international astronomical research.

Now, with the Square Kilometre Array (SKA), South Africa is again able to demonstrate that it can compete with the world's finest.

Let me proudly indicate that we have now begun with the construction of the SKA project in South Africa. Our construction together with that of Australia forms the biggest-ever radio telescope array in the history of large-scale astronomical projects, at a cost of US \$2.2 billion.

It is estimated that these two sites will together create 710 petabytes of science data when fully operational in 2029. It is therefore expected that astronomers can get 50 years or more of transformational science through the SKA.

In South Africa, 133 dish antennas will be added to the existing 64-dish MeerKAT precursor telescope, totalling nearly 200 dishes, to form the SKA's mid-frequency telescope array.

Through the SKA bursary programme, we have supported a total of 1 400 students to date.

Let me also indicate that apart from the benefits to science, South African companies and the South African Radio Astronomy Observatory will benefit immensely from the rolling out of this infrastructure, which includes the building of the SKA Exploratorium in Carnarvon in the Northern Cape.

The initiative is expected to boost science awareness and outreach, stimulate science tourism in the region and create employment.

South African scientific prowess is of course not limited to astronomical sciences, but as this evening's award will hopefully demonstrate, it covers a remarkable diversity of scientific achievements in both the natural sciences and social sciences and humanities.

SCIENCE AND RESEARCH RESPONSE IN ADDRESSING SOCIETAL CHALLENGES

Our Decadal Plan builds on the existing foundations of the National System of Innovation (NSI) and pivots the system to address societal challenges and contribute towards accelerated knowledge, digital and innovation-driven inclusive sustainable socio-economic development.

This Plan emphasises four societal grand challenges:

- Climate change,
- Future-proofing education and skills;
- Re-industrialising the modern economy;
- The future of society and two STI priorities (health innovation and energy innovation).

To illustrate an example of one area that is a focus of our Decadal Plan, as a Department, we are highly involved in the area of Health Innovation, particularly in three critical areas of Medical Device and Diagnostic Innovation, Active Pharmaceutical Ingredient (API) Technology Innovation and Supporting health needs through vaccine research, development and manufacturing strategy.

In this regard, we are continuing to support the consortium led by the World Health Organization to develop and build the mRNA vaccine technology transfer hub locally.

The aim of the hub is to diversify vaccine manufacturing and specifically accelerate vaccine production in Africa, through a consortium made up of the Medicines Patent Pool, Biovac, Afrigen Biologics and Vaccines, the DSI, the SAMRC, a network of universities and the Africa Centres for Disease Control and Prevention.

I must indicate that our science and innovation investments made in the past decades have been critical enablers to ensure South Africa has the necessary expertise, infrastructure and research capacity to respond to imminent health risks.

This was demonstrated when our NSI leveraged our response systems to the COVID 19 pandemic.

Collectively we were able to respond to COVID-19 in a joint effort. Our country produced premier science that did not only assisting us locally, but also contributed to the global body of knowledge on COVID-19.

Our infrastructure in response to COVID 19 included:

- The KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP) which saw local scientists lead investigations into the evolutionary characteristics of SARS-CoV-2 and detected a new variant, dubbed 501Y.V2;
- The Centre for Proteomic and Genomic Research (CPGR); and
- The South African Biodiversity Institute whose research and development portfolio includes pathogen genomics, and the skills needed in the areas of vaccines, biochemistry, microbiology and genetics, among others.
- Mobilisation of humanities and social sciences through the HSRC in support of our fight against Covid-19 through, amongst others, attitude surveys and beliefs about type pandemic as well as attitudes towards vaccines

SCIENCE AND INNOVATION FOR ECONOMIC DEVELOPMENT

Ladies and gentlemen

As you know, South Africa faces massive economic and social reproduction challenges, which manifest in the persistent high levels of unemployment, poverty and inequality that imposes debilitating effects on the poor and working class.

Government sees the role of STI as critical in the fight against economic and social inequality, and the quest for a more inclusive, equal and socially-just society.

We have developed the DSI's Innovation Strategy in support of our country's Economic Reconstruction and Recovery Plan (ERRP).

The strategy repositions our Department to promote new knowledge production and innovation directly supportive of the strategic aims of the ERRP.

Through the National Research Foundation, our Department continues to develop new generations of scientists who represent a cross-section of our country's scientific endeavours; men and women who are committed to overcome the challenges in our society through scientific research and innovation.

Their work is aimed at addressing the needs of our society, whether it is feeding, educating and keeping citizens healthy or discovering ways to mitigate effects of climate change, protect our delicate ecosystems or adding substantially to the world's store of knowledge.

While we honour these people for the positive impact of their work, we also honour them for the lives they have changed.

This includes the training and upskilling of postgraduate students who seek to immerse themselves in the sciences that seeks to solve society's persistent developmental challenges, as well as postdoctoral researchers who seek to position themselves at the leading edge of scientific innovation.

One might ask a question as to: How do we know that our efforts as a department have been effective in bolstering the country's research environment?

One way of knowing is by looking at our research performance.

The web of science publications by NRF-funded researchers increased by almost 12% in the single year from 2020 to 2021 – faster than the world average of 1.7%.

NRF-funded researchers also produced 33% of South Africa's publications. In 2020 the NRF supported 15% of the country's researchers who produced almost 30% of the country's articles.

Of the NRF's Web of Science publications, 57% were linked to one or more of the United Nations Sustainable Development Goals, placing it among such countries as Denmark, Egypt, Singapore and Austria.

The NRF has made considerable strides in addressing the historical imbalances that have existed in the research landscape – 81% of students funded by the organisation are Black and researchers funded are comprised of 59% women and 50% Black women.

Impressive as these figures are, there is still work to be done, particularly in the area of NRF rated researchers. For example, in the five years from 2018 to 2022, the number of Black rated researchers grew from 20% to 27% and the number of women rated researchers grew from 29% to 32%.

We need to expand our mentorships; provide more training and upskilling opportunities to those from historically disadvantaged groups; build greater capacity at our research institutions, particularly those that have been marginalised; and, most importantly, we

need to encourage more of our learners at school level to embrace STEM subjects and not only take them further once they enter university.

We also need to encourage larger numbers of capable undergraduates to pursue postgraduate study and enter into the postdoctoral research career pathways.

The NRF Awards play a critical role in all of this. They represent a high standard of research excellence and an important measure of the value in the creation of global knowledge by our scientists and our institutions.

Our cohort of scientists compete at the same levels as their global counterparts and have earned their respect which is reflected in the huge number of international collaborations and partnerships that the NRF has been engaged in.

In order to encourage the private sector to invest in research and development, Government has extended the current tax research incentives dispensation until the 31st December 2023.

Beyond this, we are firmly committed to leveraging both public and private resources to increase gross domestic investment in research and development as a percentage of Gross Domestic Product with the aim of achieving the National Development Plan's target of 1,5%.

CONCLUSION

I would like to conclude my remarks by commending the NRF and its leadership for maintaining the high standards of research outputs in South Africa. Through this, the NRF continues to advance knowledge, change lives and inspire our nation.

The Awards this evening demonstrate the power of public investment in science for public good – science at the service of society, particularly the most marginalised and vulnerable sectors of our society.

As a Minister of Higher Education, Science and Innovation, I must indicate that am proud to be presiding over the DSI which provides the policy framework within which the NRF is directed to play such a catalytic role in expanding and transforming South Africa's STI landscape.

Thank you for your commitment to making South Africa a better place for all of its citizens.

Congratulations to all the awardees today!